

**To:** Vince Parker[v.parker@erllc.com]  
**From:** Way, Steven  
**Sent:** Mon 9/14/2015 4:21:18 AM  
**Subject:** FW: GK Mine Discharge- Temporary Treatment - Lime Addition / Floc Optimizer 83949 Floc Testing

FYI – recommendations for preparing the NALCO product to pump slurry.

Steven Way

Federal On-Scene Coordinator

Emergency Response Unit

US EPA - Region 8

1595 Wynkoop Street

Denver, CO 80202

Office: 303-312-6723

**From:** Dave McCarthy [mailto:dave.mccarthy@copperenv.com]  
**Sent:** Sunday, September 13, 2015 9:11 PM  
**To:** Way, Steven; 'Jim Jonas'  
**Cc:** 'Matt Francis'; Myers, Craig  
**Subject:** RE: GK Mine Discharge- Temporary Treatment - Lime Addition / Floc Optimizer 83949 Floc Testing

Steve:

At the two facilities that we work on which use the NALCO 83949, it is delivered in dry form (55 lb bags at one and supersacks at another) and made into a liquid at the facility using flocculant batching equipment. When we stated that you should buy it in liquid form, it was my assumption that it would be available in liquid form, as many flocculants that we have tested typically are available in both solid and liquid form. Sorry if we led you off course.

If you are going to make liquid batches with the 83949, I would recommend that you ask the NALCO representative for their recommendations on how to make a batch. The following items may be important (as they are important for many flocculants):

1. Maximum batch concentration: Some flocculants when mixed at concentrations greater than 1% in the batch will become very viscous and difficult to pump into your flow stream. I believe we have used the NALCO 83949 at a 3% batch concentration at one of our facilities, but the batching process there is automated and kept in a heated building.
2. Mixing speed: The long chain molecules in some flocculants can be susceptible to breakdown from high speed mixing. The NALCO representative may want the mixing speed to be relatively slow while batching and dosing.
3. Water source: The chemistry of the source water for making a batch of flocculant can affect the flocculant performance. At both of the facilities that we use NALCO products, we use fresh water from a potable source to make the batch.
4. Temperature: We have found in our various testing of flocculants that temperature can affect the speed that the dry flocculant will dissolve and the ultimate consistency of the batch. Warm water can help a lot, though I know this may not be possible in your case.

I hope this is helpful, as most of the above will apply to whichever flocculant you choose. As you can see, this is why we suggested going with a pre-mixed liquid flocculant. One idea may be to use a trailer mounted tank which can be batched in a warm garage and brought to the site for transfer into a dosing tank. Please let us know if we can help.

Thanks,

Dave

Dave McCarthy

Copper Environmental Consulting

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**From:** Way, Steven [<mailto:way.steven@epa.gov>]

**Sent:** Sunday, September 13, 2015 8:04 AM

**To:** Dave McCarthy; Jim Jonas

**Cc:** Matt Francis ([m.francis@erllc.com](mailto:m.francis@erllc.com)); Myers, Craig

**Subject:** FW: GK Mine Discharge- Temporary Treatment - Lime Addition / Floc Optimizer 83949 Floc Testing

Dave and Jim,

We are purchasing this product as it appears that we need the addition to improve settling. During our discussions onsite, I recalled that you said it should be available in liquid form. Do you have any additional information on that or another product.

Thanks,

Steve

Steven Way

Federal On-Scene Coordinator

Emergency Response Unit

US EPA - Region 8

1595 Wynkoop Street

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Office: 303-312-6723

**From:** Matt Francis [<mailto:m.francis@erllc.com>]  
**Sent:** Tuesday, September 08, 2015 12:37 PM  
**To:** Way, Steven  
**Cc:** Powell, Greg; Dhieux, Joyel; Guy, Kerry; Myers, Craig; Petri, Elliott  
**Subject:** RE: GK Mine Discharge- Temporary Treatment - Lime Addition / Floc Optimizer 83949  
Floc Testing

I received a quote earlier today on the Nalco Optimizer 83949. The quote was direct from Nalco who say the product is only available in dry form. Are we sure it purchased in liquid form in the past, or is it possible it was purchased as powder and mixed? If we're sure it was liquid I will probe them some more.

It seems expensive to me, hope it works really great.

“Optimizer 83949.04 (\$372.35 per 55 pound bag) (\$14,927.85 per pallet)”

The Nalco accounting folks should have a new account set up for me by first thing tomorrow morning and I can order anytime after that. They say a rush order is 8 days.

Please advise for further action.

Thanks

**From:** Way, Steven [<mailto:way.steven@epa.gov>]  
**Sent:** Tuesday, September 08, 2015 12:27 PM  
**To:** Matt Francis <[m.francis@erllc.com](mailto:m.francis@erllc.com)>  
**Cc:** Powell, Greg <[Powell.Greg@epa.gov](mailto:Powell.Greg@epa.gov)>; Dhieux, Joyel <[Dhieux.Joyel@epa.gov](mailto:Dhieux.Joyel@epa.gov)>; Guy,

Kerry <[Guy.Kerry@epa.gov](mailto:Guy.Kerry@epa.gov)>; Myers, Craig <[Myers.Craig@epa.gov](mailto:Myers.Craig@epa.gov)>; Petri, Elliott  
<[Elliott.Petri@WestonSolutions.com](mailto:Elliott.Petri@WestonSolutions.com)>

**Subject:** FW: GK Mine Discharge- Temporary Treatment - Lime Addition / Floc Optimizer 83949  
Floc Testing

Matt,

FYI – the Copper Env team assisting with our current system performance and potential future lime addition based system at Glandstone has provided the following information. If we determine it is necessary to use Flocculent, then our current testing results are indicated below. The main point being the pH will need to be raised to have effective flocculent performance with the Nalco product previously discussed.

This does not require an immediate action, other than, the need to identify a supplier of the liquid form in tote size or equivalent was discussed before the long weekend.

Steve

Steven Way

Federal On-Scene Coordinator

Emergency Response Unit

US EPA - Region 8

1595 Wynkoop Street

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Office: 303-312-6723

**From:** Jim Jonas [<mailto:jim.jonas@copperenv.com>]  
**Sent:** Tuesday, September 08, 2015 11:21 AM  
**To:** Myers, Craig; 'Dave McCarthy'  
**Cc:** Way, Steven; 'Petri, Elliott'  
**Subject:** RE: Optimer 83949 Floc

Hi Craig,

Yes, the NALCO Optimer 83949 was the floc we tested and we found it worked better with higher pHs (>6). At other lime treatment systems, we typically dose 1-5 ppm depending on pH, solids loading, and clarifier capacity. We've got about a dozen different flocculants we plan to test with treated water (pH 4.5 and up) from the Site to identify the best flocculant for low pH. We should have the testing completed in the next week or two (at most).

Let me know if you have additional questions.

Thanks,

Jim Jonas

Copper Environmental Consulting

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**From:** Myers, Craig [<mailto:Myers.Craig@epa.gov>]  
**Sent:** Tuesday, September 8, 2015 10:26 AM  
**To:** Jim Jonas; 'Dave McCarthy'  
**Cc:** Way, Steven; 'Petri, Elliott'  
**Subject:** FW: Optimer 83849 Floc

Jim/Dave,

Is this the floc you all tested? If it is, what application rate should we expect to use? Thanks.

Steve,

I assume we're thinking this for when we move the treatment from the R&B to Gladstone?

**From:** Matt Francis [<mailto:m.francis@erllc.com>]  
**Sent:** Tuesday, September 08, 2015 10:21 AM  
**To:** Myers, Craig; Dhieux, Joyel  
**Subject:** Optimer 83849 Floc

Below is a quote for the floc you wanted, and attached is some information on it. For some reason I thought this was to be a liquid floc, but it comes in bags. Seems expensive. Let me know if you would like me to proceed with the order, and how much.

Thanks

**From:** Kaemmerling, Calvin [<mailto:Calvin.Kaemmerling@nalco.com>]  
**Sent:** Tuesday, September 08, 2015 10:11 AM  
**To:** Matt Francis <[m.francis@erllc.com](mailto:m.francis@erllc.com)>  
**Subject:** RE: Introduction

Hi Matt,

This is a dry flocculant so I have the price per 55 pound bag and per pallet (40 bags). These prices include shipping, but do not include tax. I have attached the GHS SDS and the product data sheet. Please let me know how much you would like to order and the PO number. I will get everything going as quickly as possible. I can also help you with activation and makedown procedures. Please let me know if you have any questions about this or anything else.

Optimer 83949.04 (\$372.35 per 55 pound bag)

(\$14,927.85 per pallet)

Thank you,

Calvin Kaemmerling

District Representative

INALCO An Ecolab Company

M 303-868-0466

E [Calvin.Kaemmerling@nalco.com](mailto:Calvin.Kaemmerling@nalco.com)

**From:** Kaemmerling, Calvin  
**Sent:** Tuesday, September 08, 2015 9:47 AM  
**To:** 'm.francis@erllc.com'  
**Subject:** Introduction

Hi Mr. Francis,

I received the following information and would like to talk to you about how I may be able to meet your needs. I am local in Colorado and specialize in coagulants and flocculants. Please call or email me with any additional information you have and I will do what I can to meet your needs.



**Caller Name :** Matt Francis  
**Caller Telephone :** 303 994-6611  
**Caller Email Address :** [m.francis@erllc.com](mailto:m.francis@erllc.com)  
**Company Name :** Environmental Restoration  
**Caller's Address :** 4870 Newport Street  
Commerce City CO. 80022  
**Shipping Address :**  
1218 Greene Street  
Silverton CO. 81433  
**Product :** Optimer 8349  
**What does Company Do :** Help customers clean the environment  
**User of Product :** Flocculant  
**Resale :** Company's Use  
**Export :** No  
**Additional Details :**

Thank you,

Calvin Kaemmerling

District Representative

INALCO An Ecolab Company

M 303-868-0466

E [Calvin.Kaemmerling@nalco.com](mailto:Calvin.Kaemmerling@nalco.com)

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